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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Yongfeng Wang

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EXAMINER

MOORE, SUSANNA

ART UNIT

PAPER NUMBER

1624

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/559,516	Applicant(s) WANG ET AL.	
	Examiner SUSANNA MOORE	Art Unit 1624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 5, 8 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/22/06, 6/19/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group (I) in the reply filed on 2/4/2008 is acknowledged. Applicant did not point out any errors in the restriction requirement, thus, the requirement is deemed proper, has been made without traverse and is **Final**.

In summary, claims 1-4, 6, 7 and 10(part) are currently pending and under consideration. Claims 5, 8, 9 and 10(part) are currently withdrawn from consideration. This is a First Action on the Merits.

This application contains claims 5, 8, 9 and 10(part), drawn to an invention nonelected without traverse in the paper of 2/4/2008. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144). See MPEP § 821.01.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Substituted pyrrolo[2,3-d]pyrimidines for the Treatment of Diseases Related to Phospholipase.

This is just a suggestion. Please feel free to change the title to properly reflect the invention.

The disclosure is objected to because of the following informalities: throughout the Specification there are "~" between carbon counts. For example, on page 20, line 19, "C₂~C₆ alkenyl" is recited. This is not correct. Appropriate correction is required.

Claim Objections

Claim 7 is objected to because of the following informalities: please replace the term "drugs" with "drug." Also, insert the term "an" between "as" and "active." Furthermore, remove the phrase "any one of" in said claim. Moreover, remove the comma after "ingredient" and insert the word "a" between "and" and "veterinarily." Appropriate correction is required.

Claim 6 is objected to because of the following informalities: please insert the term "an" between "as" and "active." Moreover, remove the comma after the term "ingredient" and insert the word "a" between "and" and "pharmaceutically." Appropriate correction is required.

Claims 1 and 3 are objected to because of the following informalities: please replace the term "take" with "taken" on page 3, line 20; and page 7, line 25. Appropriate correction is required.

Claims 1-3 are objected to because of the following informalities: please remove the phrase or R¹⁰ and R¹¹ together with their attached nitrogen atom form a pyrrolinyl, pyrrolinone group, piperidyl, morpholinyl, 4-N(R¹³)-piperazinyl" is repeated on page 3, lines 22-24; page 6, lines 7-9; and page 8, lines 1-3. Appropriate correction is required.

Claims 1 and 2 are objected to because of the following informalities: the word “The” should not be capitalized, see page 4, line 25; and page 7, line 4. Appropriate correction is required.

Claims 1-3 are objected to because of the following informalities: please replace the phrase “hetero-atom selected a group consisted” with “hetero-atoms selected from a group consisting of,” see page 4, line 28; page 7, line 9; and page 8, line 27. Appropriate correction is required.

Claim 1 is objected to because of the following informalities: the word “Or” should not be capitalized, see page 5, line 3. Appropriate correction is required.

Claim 4 is objected to because of the following informalities: there are unmatched parenthesis/brackets in the following species: 23 and 26-32. Appropriate correction is required.

Claim 10 is objected to because of the following informalities: the statement of intended use is not given patentable weight. Appropriate correction is required.

Claim 10 is objected to because of the following informalities: a period is missing at the end of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4, 6, 7 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Throughout the Specification there are "~" between carbon counts. For example, claim 1, line 4, "C₁~C₄ branched..." is recited.

Regarding claim 1, the phrase "general" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "general"), thereby rendering the scope of the claim(s) unascertainable.

In claim 1, line 12, Applicant recites "substituted phenyl," however, later in the same paragraph recites "the above substituents may be optionally substituted with one or more following groups:." Are these substituents different from the those on the "substituted phenyl?" Furthermore, in claim 1, line 16, Applicant recited "substituted heterocyclic group," however, Applicant does not recite with which substituents. This is found throughout the claims; the term

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"substituted" is used but the substituents are not named. This is really confusing. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999).

In claim 1, the last line in the definition of R^8 , Applicant recites, "substituted phenyl and substituted heterocyclic group are defined as the above," however, there is not a definition above for these substituents.

Claim 2 recites the limitation " $CONR^6R^7$ and NR^6R^7 " in the definition of R^1 . There is insufficient antecedent basis for this limitation in the claim.

Claim 2 recites the limitation "substituted phenyl" in the definition of R^2 . There is insufficient antecedent basis for this limitation in the claim.

Claim 2 recites the limitation " $C_1\sim C_4$ alkoxy, the said alkyl and alkoxy are substituted with phenyl, hydroxyl; $C_2\sim C_6$ alkenyl or $C_3\sim C_6$ cycloalkyl;" in the definition of R^{12} . There is insufficient antecedent basis for this limitation in the claim.

Claim 3 recites the limitation "NR⁶R⁷" in the definition of R¹. There is insufficient antecedent basis for this limitation in the claim.

Claims 1-4, 6, 7 and 10 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for compounds of Formula 1, wherein R¹= alkyl or a substituted alkyl; R² is hydrogen; and R⁵= SO₂NR¹⁰R¹¹ does not reasonably provide enablement for compounds of Formula 1, wherein R¹ is H; C₁-C₄ halogenated branched or straight chain alkyl; C₂-C₆ alkenyl; C₂-C₄ alkynyl; pyridyl, pyrimidinyl, imidazolyl; except H, the above substituents may be optionally substituted with one or more following groups: halogen, cyano, nitro, hydroxyl, carboxyl, guanidino, C₁-C₄ alkyl, C₁-C₄ alkoxy, C₁-C₄ alkanoyl, C₃-C₅ cycloalkyl, substituted phenyl, substituted heterocyclic group, CONR⁵R⁶, NR⁵R⁶, CO₂R⁷, NHSO₂R⁸ or SO₂NR⁹R¹⁰; R² is C₁-C₃ branched or straight chain alkyl; C₁-C₃ halogenated branched or straight chain alkyl; C₂-C₆ alkenyl; C₂-C₄ alkynyl; substituted phenyl; except H, the above substituents may be optionally substituted with one or more following groups: halogen, cyano, nitro, hydroxyl, carboxyl, guanidino, C₁-C₄ alkyl, C₁-C₄ alkoxy, C₁-C₄ alkanoyl, C₃-C₅ cycloalkyl, substituted heterocyclic group, CONR⁶R⁷, NR⁶R⁷, CO₂R⁸, NHSO₂R⁹ or SO₂NR¹⁰R¹¹; R⁵ is H; C₁-C₄ branched or straight chain alkyl which may be optionally substituted with OH, NR⁶R⁷, CN, CONR⁶R⁷ or CO₂R⁸; C₂-C₄ alkenyl which may be optionally substituted with CN, CONR⁶R⁷ or CO₂R⁸; C₂-C₄ alkoxy optionally substituted with NR⁶R⁷; (C₂-C₃ alkoxy) C₁-C₂ branched or straight chain alkyl optionally substituted with OH or NR⁶R⁷; CONR⁶R⁷; CO₂R⁸; halogen; NR⁶R⁷; NHSO₂NR⁶R⁷; NHSO₂R⁹; or phenyl, pyridyl, pyrimidinyl, imidazolyl, oxazolyl, thiazolyl, thienyl, or triazolyl, either of which is optionally substituted with methyl.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Pursuant to *In re Wands*, 858 F.2d 731,737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988), one considers the following factors to determine whether undue experimentation is required: (A) The breadth of the claims; (B) The nature of the invention; (C) The state of the prior art; (D) The level of one of ordinary skill; (E) The level of predictability in the art; (F) The amount of direction provided by the inventor; (G) The existence of working examples; and (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure. Some experimentation is not fatal; the issue is whether the amount of experimentation is "undue"; see *In re Vaeck*, 20 USPQ2d 1438, 1444.

The analysis is as follows:

(A) Breadth of claims: Scope of the compounds. Owing to the range of many variables, trillions of substituted pyrrolo[2,3-d]pyrimidines are embraced.

(B) The nature of the invention: The invention is a highly substituted pyrrolo[2,3-d]pyrimidines.

(C) Level of predictability in the art: It is well established that "the scope of enablement varies inversely with the degree of unpredictability of the factors involved," and physiological activity is generally considered to be an unpredictable factor. See *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970).

(D) Direction or Guidance: That provided is very limited. Applicant shows a general synthesis of compounds of Formula 1, under Preparation on page 42 of the Specification, but does not show the starting material used to make the variety of compounds claimed. There is limited evidence in the Specification of the example compounds that only cover a small portion of the substituents claimed of Formula 1. Thus, there is no specific direction or guidance regarding said compounds of Formula 1 specifically mentioned in Scope.

The specification does not provide any support for the synthesis of compounds of Formula 1, wherein R^1 is H; C_1 - C_4 halogenated branched or straight chain alkyl; C_2 - C_6 alkenyl; C_2 - C_4 alkynyl; pyridyl, pyrimidinyl, imidazolyl; except H, the above substituents may be optionally substituted with one or more following groups: halogen, cyano, nitro, hydroxyl, carboxyl, guanidino, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, C_1 - C_4 alkanoyl, C_3 - C_5 cycloalkyl, substituted phenyl, substituted heterocyclic group, $CONR^5R^6$, NR^5R^6 , CO_2R^7 , $NHSO_2R^8$ or $SO_2NR^9R^{10}$; R^2 is C_1 - C_3 branched or straight chain alkyl; C_1 - C_3 halogenated branched or straight chain alkyl; C_2 - C_6 alkenyl; C_2 - C_4 alkynyl; substituted phenyl; except H, the above substituents may be optionally substituted with one or more following groups: halogen, cyano, nitro, hydroxyl, carboxyl, guanidino, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, C_1 - C_4 alkanoyl, C_3 - C_5 cycloalkyl, substituted heterocyclic group, $CONR^6R^7$, NR^6R^7 , CO_2R^8 , $NHSO_2R^9$ or $SO_2NR^{10}R^{11}$; R^5 is H; C_1 - C_4 branched or straight chain alkyl which may be optionally substituted with OH, NR^6R^7 , CN, $CONR^6R^7$ or CO_2R^8 ; C_2 - C_4 alkenyl which may be optionally substituted with CN, $CONR^6R^7$ or CO_2R^8 ; C_2 - C_4 alkoxy optionally substituted with NR^6R^7 ; (C_2 - C_3 alkoxy) C_1 - C_2 branched or straight chain alkyl optionally substituted with OH or NR^6R^7 ; $CONR^6R^7$; CO_2R^8 ; halogen;

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NR^6R^7 ; $\text{NHSO}_2\text{NR}^6\text{R}^7$; NHSO_2R^9 ; or phenyl, pyridyl, pyrimidinyl, imidazolyl, oxazolyl, thiazolyl, thienyl, or triazolyl, either of which is optionally substituted with methyl.

The availability of the starting material that is needed to prepare the invention as claimed is at issue here....As per MPEP 2164.01 (b). A key issue that can arise when determining whether the specification is enabling is whether the starting materials or apparatus necessary to make the invention are available. In the biotechnical area, this is often true when the product or process requires a particular strain of microorganism and when the microorganism is available only after extensive screening. The Court in *In re Ghiron*, 442 F.2d 985, 991, 169 USPQ 723, 727 (CCPA 1971), made it clear that if the practice of a method requires a particular apparatus, the application must provide a sufficient disclosure of the apparatus if the apparatus is not readily available. The same can be said if certain chemicals are required to make a compound or practice a chemical process. *In re Howarth*, 654 F.2d 103, 105, 210 USPQ 689, 691 (CCPA 1981).

(E) State of the Prior Art: These compounds are substituted pyrrolo[2,3-d]pyrimidines of Formula I wherein wherein R^1 = alkyl or a substituted alkyl; R^2 is hydrogen; and R^5 = $\text{SO}_2\text{NR}^{10}\text{R}^{11}$ with an oxy substituent at the 2-position on the phenyl ring at the 2-position of the bicycle. So far as the examiner is aware, no substituted pyrrolo[2,3-d]pyrimidines of Formula I wherein R^1 is H; C_1 - C_4 halogenated branched or straight chain alkyl; C_2 - C_6 alkenyl; C_2 - C_4 alkynyl; pyridyl, pyrimidinyl, imidazolyl; except H, the above substituents may be optionally substituted with one or more following groups: halogen, cyano, nitro, hydroxyl, carboxyl, guanidino, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, C_1 - C_4 alkanoyl, C_3 - C_5 cycloalkyl, substituted phenyl, substituted heterocyclic group, CONR^5R^6 , NR^5R^6 , CO_2R^7 , NHSO_2R^8 or $\text{SO}_2\text{NR}^9\text{R}^{10}$; R^2 is

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C₁~C₃ branched or straight chain alkyl; C₁-C₃ halogenated branched or straight chain alkyl; C₂~C₆ alkenyl; C₂~C₄ alkynyl; substituted phenyl; except H, the above substituents may be optionally substituted with one or more following groups: halogen, cyano, nitro, hydroxyl, carboxyl, guanidino, C₁~C₄ alkyl, C₁~C₄ alkoxy, C₁~C₄ alkanoyl, C₃~C₅ cycloalkyl, substituted heterocyclic group, CONR⁶R⁷, NR⁶R⁷, CO₂R⁸, NHSO₂R⁹ or SO₂NR¹⁰R¹¹; R⁵ is H; C₁~C₄ branched or straight chain alkyl which may be optionally substituted with OH, NR⁶R⁷, CN, CONR⁶R⁷ or CO₂R⁸; C₂~C₄ alkenyl which may be optionally substituted with CN, CONR⁶R⁷ or CO₂R⁸; C₂~C₄ alkoxy optionally substituted with NR⁶R⁷; (C₂~C₃ alkoxy) C₁~C₂ branched or straight chain alkyl optionally substituted with OH or NR⁶R⁷; CONR⁶R⁷; CO₂R⁸; halogen; NR⁶R⁷; NHSO₂NR⁶R⁷; NHSO₂R⁹; or phenyl, pyridyl, pyrimidinyl, imidazolyl, oxazolyl, thiazolyl, thienyl, or triazolyl, either of which is optionally substituted with methyl of any kind have been made or used.

(F) Working Examples: Applicant shows examples 1-36 but no working examples were shown of Formula I wherein R¹ is H; C₁-C₄ halogenated branched or straight chain alkyl; C₂~C₆ alkenyl; C₂-C₄ alkynyl; pyridyl, pyrimidinyl, imidazolyl; except H, the above substituents may be optionally substituted with one or more following groups: halogen, cyano, nitro, hydroxyl, carboxyl, guanidino, C₁~C₄ alkyl, C₁~C₄ alkoxy, C₁~C₄ alkanoyl, C₃~C₅ cycloalkyl, substituted phenyl, substituted heterocyclic group, CONR⁵R⁶, NR⁵R⁶, CO₂R⁷, NHSO₂R⁸ or SO₂NR⁹R¹⁰; R² is C₁~C₃ branched or straight chain alkyl; C₁-C₃ halogenated branched or straight chain alkyl; C₂~C₆ alkenyl; C₂~C₄ alkynyl; substituted phenyl; except H, the above substituents may be optionally substituted with one or more following groups: halogen, cyano, nitro, hydroxyl,

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carboxyl, guanidino, C₁~C₄ alkyl, C₁-C₄ alkoxy, C₁-C₄ alkanoyl, C₃~C₅ cycloalkyl, substituted heterocyclic group, CONR⁶R⁷, NR⁶R⁷, CO₂R⁸, NHSO₂R⁹ or SO₂NR¹⁰R¹¹; R⁵ is H; C₁~C₄ branched or straight chain alkyl which may be optionally substituted with OH, NR⁶R⁷, CN, CONR⁶R⁷ or CO₂R⁸; C₂~C₄ alkenyl which may be optionally substituted with CN, CONR⁶R⁷ or CO₂R⁸; C₂~C₄ alkoxy optionally substituted with NR⁶R⁷; (C₂~C₃ alkoxy) C₁~C₂ branched or straight chain alkyl optionally substituted with OH or NR⁶R⁷; CONR⁶R⁷; CO₂R⁸; halogen; NR⁶R⁷; NHSO₂NR⁶R⁷; NHSO₂R⁹; or phenyl, pyridyl, pyrimidinyl, imidazolyl, oxazolyl, thiazolyl, thienyl, or triazolyl, either of which is optionally substituted with methyl.

(G) Skill of those in the art: The ordinary artisan is highly skilled.

(H) The quantity of experimentation needed: Since there are very limited working examples as described above, the amount of experimentation is expected to be high and burdensome.

Due to the level of unpredictability in the art, the very limited guidance provide, and the lack of working examples, the Applicant has shown lack of enablement for the groups noted groups on Formula i. MPEP 2164.01(a) states, "A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. *In re Wright*, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993)." That conclusion is clearly justified here.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUSANNA MOORE whose telephone number is (571)272-9046. The examiner can normally be reached on M-F 8:00-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Wilson can be reached on (571) 272-0661. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James O. Wilson/
Supervisory Patent Examiner
Art Unit 1624

/Susanna Moore/
Examiner, Art Unit 1624